

## **INFRASTRUCTURE CONDITIONS IN PUBLIC SECONDARY SCHOOLS, OGUN STATE NIGERIA**

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### **ABSTRACT**

It is widely believed that all is not well with the facilities and infrastructure in public schools in Nigeria. However studies have shown that maintenance activities go on in these institutions but the intensity and magnitude may be inadequate. The Study examines the availability and condition of infrastructures in Public Secondary School buildings in Ado-Odo/ Ota L.G.A, Ogun State, Nigeria. The study used descriptive survey research method and stratified random sampling technique to sample Thirty-Six Public Secondary Schools out of Forty-Seven in Ado-Odo/Ota Local Government Area. Data were collected using questionnaire and observation methods. The analysis was done through descriptive statistics and chi square tests. The result shows that user attitude, maintenance culture and lack of fund have major influence on the present condition of the existing infrastructures. It was observed that a sizeable portion of the infrastructures in the Public Secondary School are in the state of disrepair and there is high need for resolving them. This paper concludes that if proper attention is given to school infrastructures there will be improvements in the Public Secondary School building Condition in Ado-Odo. Ota L. G. A Ogun State.

**KEYWORDS:** Disrepair, Infrastructure, Maintenance, Public Schools, Secondary Schools

### **INTRODUCTION**

Maintenance enhances the quality of building structure to meet modern requirements, in order to prolong the life span of building. It is required to ensure the safety of building occupants. Shohet and Straub (2013) discussed increasing demands on maintenance programme to provide tools that will support maintenance planning. This is also confirmed by Olagunju (2011) that lack of appropriate tool for predictive maintenance of existing buildings and infrastructure can have a detrimental effect in the future. It is necessary to carry out maintenance works for the safety of the users and properties in the buildings, while also preserving the physical conditions of the building and supporting infrastructure in operational state at all times. These standards can be achieved by providing maintenance tools especially for public secondary schools in our communities. Maintenance issues play a major role in the performance of public secondary schools. Isyaku (2003) also observed that lucrative building maintenance contracts are awarded without due process which also contributes to poor maintenance of buildings. Zubairu (2010) attributed the array of abandoned and epileptically functioning of facilities in the public buildings in Nigeria to poor or lack of maintenance. This underscores the need for studying the maintenance strategy used by the school managers and various factors affecting secondary school building maintenance with a view to proffering relevant maintenance tools solutions.

According to the National Centre on Education Statistics 'NCES' (2003) School facilities maintenance affects the

physical, educational, and financial foundation of the school organization and should, therefore, be a focus of both its day-to-day operations and long range maintenance management priorities. School buildings are part of a society's asset and infrastructure, because they could be used for a long time. However, by age 40, most buildings start deteriorating rapidly, even if all original components are replaced (Lyons, 2001). Earthman (2004) emphasized that building age often is a reliable indicator that the students' performance is poor. Several authors have found evidences to support the influence of building age on infrastructure performance (Keith, 2008; Shohet, 2003 and Kaplan et al., 1996).

This study therefore attempts an in-depth condition evaluation of public secondary school buildings between June, 2010 and August, 2013 in Ado-Odo/Ota L.G.A Ogun State of Nigeria. The study essentially documented and analyzed the building condition of thirty-six out of forty-seven public secondary schools with specific attention to the maintenance issues. This is with the intent to assess the validity of the underlying models in the maintenance of public secondary schools within the study area.

## **INFRASTRUCTURE MAINTENANCE IN PUBLIC INSTITUTIONS**

Infrastructural development is a vital force towards increasing the value and usefulness of building and public facilities. Provision of portable water, electricity, drainages, sanitary facilities, sewage disposal and access roads essentially complement the buildings in such public schools while contributing to the proper functioning of the physical developments. Jijac et al. (2009) argue that maintenance of urban infrastructure is a complex task that is even more difficult with taking decisions to prioritize aspects to be maintained. Mojela (2013) identified several factors that contribute to the deplorable conditions of public schools infrastructure in South Africa. These include inadequate government intervention, no sense of ownership by stakeholders, inadequate funding, and vandalism. Furthermore, lack of maintenance, neglect, deferred maintenance and overcrowding were also identified. A multi stakeholder framework for the proper maintenance of public schools infrastructure is proposed to eradicate existing poor conditions.

## **STATEMENT OF THE PROBLEM**

Existing public secondary school buildings in Nigeria lacks adequate maintenance attention. Most public secondary school buildings are in very poor and deplorable conditions of infrastructural disrepair. While considerable research have been carried out on maintenance of these schools and offices in Nigeria but only scanty attention has been given to the key parameters affecting the infrastructures in public school buildings. There is therefore a need to establish and evaluate the factors affecting maintenance of infrastructural amenities in public secondary buildings using appropriate research instruments.

### **Aim**

To examine the availability and conditions of infrastructural amenities in public schools in Ado-Odo/Ota L. G. A, Ogun state with a view of improving the existing conditions.

### **Objectives**

- To assess the availability and physical-functional condition of infrastructural amenities in public secondary schools in Ado-Odo/Ota L. G. A, Ogun state.
- To determine the relationship between maintenance strategies applied and the conditions of essential infrastructure in public secondary buildings in Ado-Odo/Ota L.G.A, Ogun state.

### Research Hypothesis

There is no significant relationship between condition of water supply pipe networks and maintenance strategy used in public secondary schools Ado-Odo/Ota L. G. A, Ogun state.

### METHODOLOGY

This study covers public secondary buildings in Ado-Odo/Ota L.G.A, Ogun state Nigeria. From the forty- seven (47) existing public secondary school buildings in Ado-Odo/Ota L.G.A, thirty-six (36) public secondary buildings were selected using the random sampling method. The simple random sampling method was adopted so as to give equal chances to all the existing secondary schools. One questionnaire was designed and administered to the maintenance managers who are also the principals or vice- principal and the users of these selected public school buildings respectively.

### Method of Data Analysis

The data collected was analyzed using statistical package for social sciences (SPSS) and STATGRAPHICS Centurion Statistical Software 2013 so as to obtain a comprehensive and accurate analysis in both the descriptive statistics and inferential statistics as applicable.

### Operational Definitions of Variables

A research should have specific variables and coding for easy identification and referencing in data analysis and interpretation of empirical investigation (Olotuah, 2005). Two factors of research are measured and presented, namely qualitative data (applicable for nominal and ordinal variables) and quantitative data (interval variables).

**Table 1: Definition of Variables**

V/N	Code	Description	Scale of Measurement	Range of Values
V1	LENSTs	Length of Stay	Interval	1-5
V2	ACADQU	academic qualification	Ordinal	1-7
V3	SCHAGE	school age	Interval	1-5
V4	ELECT	Electrical installations?	Nominal	1-4
V5	PLUMB	Condition of pipes for Plumbing/ water supply	Nominal	1-4
V6	TOILET	Type of toilet facility	Nominal	1-3
V7	WC	Condition of WC	Nominal	1-3
V8	PIPES	Source of water supply	Nominal	1-4
V9	DRAINS	Drains/Gutters	Nominal	1-5
V10	MTSTRA	Maintenance Strategy	Nominal	1-2

### Analysis of Data

Below are the analysis and the results of data collected from the field survey after using data collection instruments.

**Table 2**

Respondents	Questionnaires Administered	Questionnaires Retrieved	% Of Response Rate
School Maintenance Managers	47	36	77

**Source:** Field Survey, June, 2013

**Table 3: The Length of Stay in a School within the Study Area**

Length of Stay	Frequency	Valid Percent
1-4yrs	26	72.2
5-8yrs	10	27.8
<b>Total</b>	<b>36</b>	<b>100</b>

**Source:** Fieldwork survey, 2013.

Table 2 shows the length of stay of the respondents in their secondary school buildings of which the majority (72.2%) has only spent between 1-4 years.

**Table 4: Age of Public Secondary Schools**

School Age (Years)	Frequency	Valid Percent
Up to 20	12	33.3
21-30	8	22.2
31-40	13	36.1
41-50	1	2.7
51 and above	2	5.5
<b>Total</b>	<b>36</b>	<b>100.0</b>

**Source:** Fieldwork survey, 2013

The distribution is presented in table 4; it shows that 33.3% of the schools of the respondents were below 20 years of age, while 36.1 % were between 31-40 years, which represented majority of the respondents' schools. Those aged between 21-30 years were 22.2%, while those aged between 41-50years were 2.7% and above 50 years were 5.5%. The result also implies that 41-50 years and 51years & above had low percentage because secondary schools stated around that time in the state.

**Table 5: Maintenance of the Existing Infrastructures in the Secondary Schools**

Good Maintenance	Frequency	Valid Percent
Yes	15	41.6
No	21	58.4
<b>Total</b>	<b>36</b>	<b>100.0</b>

**Source:** fieldwork survey, 2013.

In Table 5, the analysis shows that 41.6% of the respondents were of the opinion that the infrastructures in the schools were properly maintained while 58.4% disagree.

**Table 6: The Type of Sanitary Services in the Schools**

Type of Sanitary Services	Frequency	Valid Percent
Water closet	15	41.7
Pit latrine	16	44.4
Bush	5	13.9
<b>Total</b>	<b>36</b>	<b>100.0</b>

**Source:** Fieldwork, 2013.

Findings made from the study on sanitary services revealed that pit latrine is predominant in the secondary schools, 44.4% of the respondents claimed that. It was followed by 41.7% who used water closet while whole 13.9% do not have provision for this facility at all in the schools. Such school buildings users only make use of bush, dunghill, stream and drainage channels.

**Table 7: Water Source Condition to the Schools**

Source of Water	Frequency	Valid Percent
Underground Well water	8	22.2
Pipe borne water	20	55.6
Surface stream	3	8.3
No water supply	5	13.9
<b>Total</b>	<b>36</b>	<b>100.0</b>

Source: fieldwork, 2013

Table 7 shows that the main source of water supply is largely through irregular pipe borne water 55.6% while 22.2% have underground well water, some of which were shallow well. This poses some problems because the water is not treated before use. Only few, about 8. 3% have surface stream, while 13.9% have no water in their schools.

**Table 8: The Condition of Plumbing**

Condition of Water Pipes	Frequency	Valid Percent
minor defect (Good)	11	30.5
Leaking taps (Fair)	9	25
Completely broken down (very bad)	6	16.6
Major defect of pipes(Bad)	7	20.5
No defect (Very good)	3	19.4
<b>Total</b>	<b>36</b>	<b>100.0</b>

Source: fieldwork, 2013

Examination of this table reveals that majority of the pipes were in good condition 30.25%, followed by 25% rated to be in fair condition, although leaking taps but they were functioning. Thus, 20.5% described the condition of their pipes to be having major defects, while 16.6% completely broken down, only 19. 4% described the condition of the pipes as very good.

**Table 9: The Condition of Electrical Wiring and Installations**

Condition of Electrical Wiring and Installations	Frequency	Valid Percent
No electrical wiring in the academic buildings (Very Bad)	17	47.2
Exposed electrical wiring (Bad)	11	30.5
Faulty electric outlet or plug (fair)	4	13.2
Working electric outlet or plug (Good)	4	11.1
<b>Total</b>	<b>36</b>	<b>100.0</b>

Source: fieldwork, 2013

In table 9, the majority of the respondents, 47.2 % indicate that the condition of the electrical installations in the schools were very bad, 30.5% of them describe the existing electrical installations as bad, while 13.2% were fairly rated only 11.1% were in good condition. None of the respondents reported 'very good' conditions.

**Table 10: Analysis of the Condition of Drainage**

Condition of Drainage	Frequency	Valid Percent
Open Drains	11	30.5
Covered Drains with concrete slab	5	13.9
Not existing	20	55.6
<b>Total</b>	<b>36</b>	<b>100.0</b>

Source: fieldwork

The output of the analysis on Table 10: reveals that in majority of the schools, there were no drains for storm water or any type of foul water. 54.8% had no drainage at all, 30.9% had opened drainage while only 14.3% had proper drainage put in place around the buildings.

### Test of Research Hypotheses

**H<sub>0</sub>:** There is no significant relationship between condition of water supply pipe networks and maintenance strategy used in public secondary schools Ado-Odo/Ota L. G. A, Ogun state.

**H<sub>1</sub>:** There is significant relationship between condition of water supply pipe networks and maintenance strategy used in public secondary schools Ado-Odo/Ota L. G. A, Ogun state.

**Table 11**

Chi-Square Tests was Carried out on the Two Variables Plumb and MSTR			
PLUMB & MTSTRA	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.200 <sup>a</sup>	4	.525
Likelihood Ratio	4.911	4	.297
Linear-by-Linear Association	.311	1	.577
N of Valid Cases	36		
a. 6 cells (60.0%) have expected count less than 5. The minimum expected count is.17.			

Chi-Square test of independence was executed between PLUMB and MSTR, the report shows that there is no significant relationship between the factors with values:  $X = 3.200$ ,  $df = 4$  and  $P > 0.5$ . From the computation for hypothesis 1, the significance value for the  $\chi^2$  test was found to be 0.525.

**Decision:** since  $0.525 > 0.05$  H<sub>0</sub> (null hypothesis) is accepted.

The state of the water supply pipe networks in the public secondary schools is not significantly related to the maintenance strategies utilized by the institutions.

### CONCLUSIONS AND RECOMMENDATIONS

The study has revealed much of the infrastructures as available in public secondary schools in the study context. However, some of the infrastructures are below acceptable standards and in few cases nonexistent. It is shocking to discover lack of functional public sanitary facilities in 13.9% of the schools; hence the 'bush' serves that purpose in such institutions. It was also discovered that 58.3% of the schools do not provide water closets for the students' toilets but provide pit latrines and other unconventional options. Storm drains are crucial for environmental control and protection. Most institutions (55.6%) lack this important infrastructure, exposing such premises to the devastating effects of erosion and flooding. Majority of the schools (55.6%) have portable water provided, this figure should be improved upon. The study revealed 58.4% of the respondents agree that the existing infrastructure has not been properly maintained, this calls for concerted efforts from all stakeholders to improve maintenance works and strategies towards the improvement of these infrastructure. Most of the schools are less than 20 years old but the conditions of the infrastructure are not commensurate, since some of the older schools have better maintained and functional infrastructure. The state of the electrical installations is fair in 24. 35% of the locations but need urgent maintenance attention in 77% of the locations. User attitude, maintenance culture and insufficient funding of maintenance works in these institutions were observed as primarily responsible for the conditions of these infrastructures. There is need for quick response from the Ogun State

Government, communities, Parents and notable organizations that operate in the state in a collective effort before the conditions become deplorable. Environmental protection, provision of decent sanitary facilities, revitalization of portable water supply and well maintained environment are essential for all schools and the students (future leaders) that receive training in the public secondary schools.

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